Published in final edited form as:

J Public Health Dent. 2015 ; 75(3): 183–190. doi:10.1111/jphd.12086.

Pediatric Dental Clinic Location and Utilization in a High Resource Setting

S. Amanda Dumas, MD, MSc¹ and Deborah Polk, PhD²

¹Division of Ambulatory Pediatrics, Louisiana State University Health Sciences Center, New Orleans, Louisiana

²University of Pittsburgh School of Dental Medicine, Pittsburgh, Pennsylvania

Abstract

OBJECTIVES—Examine dental utilization by Medicaid-insured children living in a high resource area. Characterize distance and travel-related variables to accessing care.

METHODS—Cross-sectional data was collected on dental clinics in Pittsburgh, Pennsylvania, caring for Medicaid-insured children 1 year. Shortest distances, drive times, and bus travel between dental clinics and high-poverty census tracts was determined through geographical information systems analysis. Primary care clinic (PCC) survey data was analyzed for children's dental use. Demographic characteristics and travel-related variables were compared between children who had and had not been to a dentist.

RESULTS—Ten dental clinics accepted Medicaid-insured children 1 year. Mean distance between high-poverty census tracts and their nearest clinic was 1.2 miles (± 0.2 miles), with mean bus travel time 15.6 minutes (± 12.3 minutes). Overall, 46% of PCC children reported a dental visit, and this was not significantly different between those who lived in a high poverty census tract versus those who did not (41% and 35%, respectively, $P=.58$). Children traveled a mean distance of 4.75 miles (SD 2.37 miles) to their dental clinic. Mean distance to their nearest dental clinic was 2.81 miles (SD 2.12 miles).

CONCLUSION—Dental clinics in a high resource area are in close proximity to where young Medicaid-insured children live; and distances between children's homes and dental clinics are not significantly different between children who had and had not reported a dental visit, suggesting that barriers persist despite close proximity. Regardless, closer proximity may contribute to the higher utilization of services observed compared with national rates.

Keywords

dental care for children; early childhood caries; health services accessibility; geographical information systems

INTRODUCTION

Among children ages 5 and younger, early childhood caries (ECC) is the most common chronic disease.(1) The consequences of ECC can be severe; for example, children may require treatment under general anesthesia in a hospital.(2) Given the negative impact of ECC, the American Academy of Pediatrics (AAP) recommends children begin to receive preventive dental care by 1 year of age.(3) Because ECC disproportionately affects children from low-income families (1, 4), being able to afford dental treatment could be a barrier to receiving it. However in the U.S., most children from low-income families are eligible for either Medicaid or the Children's Health Insurance Program, which are mandated to provide dental benefits. Despite this, Medicaid-insured children are more likely to go without preventive or restorative dental care than are children with private insurance.(1) A 2010 oral health report by the Government Accountability Office revealed that less than 37% of Medicaid-enrolled children received any dental services under that program, and this was less than 30% in some states.(5) By comparison, 58% of 0–20 year olds with private dental insurance had a dental visit in 2008.(6) Thus, barriers to receiving care other than ability to afford the care appear to exist. These barriers need to be identified, so that solutions to overcoming them can be designed and children can receive the care they need.

The limited availability of dental providers is one of the principal barriers to children's receipt of dental care.(7) Although general dentists usually provide care for older children, they are often ill-equipped to care for those younger than 3 years old. Typically, children younger than 3 years are seen by pediatric dentists. The supply of pediatric dentists is limited, however; there is only 1 pediatric dentist for every 5,648 children in the US.(8) Thus, many families may not live near a pediatric dentist. Additionally, pediatric and general dentists alike are often unable to sustainably care for a high volume of Medicaid-insured children due to low reimbursement rates.(6, 9) Those who do see Medicaid-insured children address the problem of sustainability by limiting the number they see in a given time period. This can lead to long wait times. Others may choose not to see these children at all. Therefore, dental providers are often inaccessible to young patients due to Medicaid insurance, long wait times, and location. However, it is unclear if children living in areas with relatively *high* availability of providers do not face these access barriers. In an area with high availability, there are dentists who accept Medicaid, wait times are unlikely to be long, and the families live near the dentists.

The primary aim of this study was to examine whether Medicaid-insured children under 6 years old who live in an area with high availability of providers do not face access barriers. We hypothesized that Medicaid-insured children living in an area with a high availability of providers would not face access barriers and have increased dental utilization. If this hypothesis is supported, it would suggest that increasing availability would be an effective solution to the problem of children from low income families going without preventive or restorative care more often than children with private insurance.

METHODS

Setting and Data Sources

This was a cross-sectional analysis of the use of dental clinics by low-income children in Pittsburgh, Pennsylvania. City level demographic data on poverty status was obtained from the United States Census Bureau's public database, and was extracted at the census tract level from the 2007–2011 American Community Survey 5 year estimates.⁽¹⁰⁾ Spatial data used for basemap generation was obtained from the Census Bureau's TIGER/Line Shapefiles database.⁽¹¹⁾

Dental clinics included in analysis were those in Pittsburgh that offered preventive dental care to Medicaid-insured children at 1 year of age. The lower age limit was based on AAP recommendations that children see a dentist by 1 year of age.⁽³⁾ The group of dental clinics was filtered from a list of all dental providers who accept Medicaid that was obtained from the Pennsylvania Department of Public Welfare in 2012. This list was narrowed down by location, and edited through internet searches for local dental providers. Prior to this analysis, each clinic was contacted by phone to confirm acceptance of Medicaid-insured children at 1 year of age, and determine typical wait-times for new patients.

We also used dental-related survey data that had been obtained on a sample of children who received medical care at an academic primary care clinic (PCC) in Pittsburgh. The PCC serves primarily low-income and minority children. The cross-sectional survey was conducted in the spring of 2012, and used convenience sampling of parents presenting to the PCC for the well-child care of children ages 15 months through 5 years. The survey excluded children with special needs that would increase normal dental care efforts, such as severe behavioral or cognitive disorders. For mapping purposes, we included all children from the survey who resided in Allegheny County, even if their address was not in the city of Pittsburgh, to compare their proximity to the PCC and dental clinics. The study was approved by the University of Pittsburgh Institutional Review Board, and all patients signed written informed consent prior to survey administration.

Geographical Information System Mapping

We conducted geographical information system (GIS) mapping to visualize the areas in Pittsburgh with high concentrations of children at risk for ECC by virtue of their poverty status. We defined "high poverty census tracts" as those in which 60% or more children in that tract who were less than 5 years old were living at or below the federal poverty line. We identified and mapped the centroid, or geometric center, of each high poverty census tract.

We geocoded (i.e., determined the spatial coordinates of) and mapped each dental clinic in Pittsburgh that accepted Medicaid-insured children for preventive dental care at 1 year of age. We also geocoded and mapped the PCC's location, from which dental-related survey data was obtained. Lastly, we geocoded and mapped the addresses of 128 PCC survey participants. The selection process used for choosing which children's addresses to map is shown in Figure 1. We excluded those who had private insurance since they presumably had a larger selection of dentists to choose from for preventive care. We also excluded the few children who lived outside of Allegheny County because we were not able to determine

possible closer dental options in other counties. Lastly, we did not map addresses for children who received dental care at a clinic noted as “other” on the survey, as we could not determine distances from their home addresses to unknown dental clinic locations. However, it is possible that clinics noted as “other” on the survey were represented on the map, though their identity was not captured with the survey. All GIS mapping and geocoding was performed with ArcGIS software (ArcGIS v10, ESRI, Redlands, CA).

Data Analysis

ArcGIS software was used to determine the nearest dental clinic to each high-poverty tract by using the clinics’ geocoded addresses and the tract centroid coordinates as point markers. The shortest driving distances, corresponding drive times, and shortest bus travel times between high-poverty tracts and dental clinics were determined using Google Maps. Drive times were calculated for low-traffic conditions to minimize variability produced by traffic. Bus travel times were calculated with departure times of 8am on weekdays, to simulate conditions that tend to have the greatest number of busses running. Although these decisions were made to produce the most favorable travel conditions for both driving and bus travel, this may have created bias for shorter travel times for driving since busses are also subject to traffic.

PCC survey data was used to determine distances traveled by a sample of children from their home addresses to the PCC, and this was compared to distances traveled to their reported dental clinic, if known. Child addresses were then used to determine their closest dental clinic in Pittsburgh, regardless of which one they may have reported using. Summary statistics were calculated for distance and travel time information. T-tests were used to compare the means of different travel groups, and the demographic information of children who had been to a dentist compared with those who had not was analyzed using Fisher’s exact, chi-square, or t-tests, where appropriate. Analyses were conducted with Stata 11.1 statistical software.(12)

RESULTS

Pittsburgh is a High Resource Area

Pittsburgh is the second largest city in Pennsylvania, with a population of 305,704, and is the seat of Allegheny County. Allegheny County contains 12% of all general dentists in Pennsylvania, which is the highest proportion in the state. Philadelphia and Montgomery Counties have the next highest, with 11% and 9%, respectively. Each of these 3 highest-provider counties has at least 50 dentists providing direct patient care per 100,000 residents. Twenty-six percent of all dental providers in Allegheny County accept Medicaid-insured patients, compared to an average of 22% for all urban Pennsylvania counties.(13) Pittsburgh is the home of 2 pediatric dentistry residency programs, including the University of Pittsburgh’s School of Dental Medicine and the Children’s Hospital of Pittsburgh of UPMC.

Dental Clinics Accepting Medicaid-Insured Children are Proximal to Those Children

The 10 dental clinics in Pittsburgh that provided preventive care to Medicaid-insured children at 1 year old were labeled *a* through *j*. Half of the clinics were private practices, and

the majority of providers were general dentists. Clinics *i* and *j* were academic clinics and the only ones that employed primarily pediatric dentists. Nine clinics had wait times for new patients that were 4 weeks or less at the time of this study. Academic clinic *i* was an outlier with a wait time of 24 weeks.

Figure 2 displays the geographical distribution of low-income children in Pittsburgh and shows that many high poverty census tracts tend to be concentrated near the rivers. There is a weak negative correlation ($\rho = -0.20$, $P=0.02$) between the concentration of poverty in each census tract and distance to each centroid's nearest dental clinic. Table 1 shows travel-related variables pertaining to the 25 highest poverty tract centroids and their closest dental clinic.

PCC Sample's Attendance at Dental Clinics

To examine dental clinic use by real Medicaid-insured children, we examined data on children who participated in the PCC survey. Nine of 173 total surveys were excluded because of children's private insurance status. A description of the 164 Medicaid-insured children who participated in the survey is presented in Table 2. The children were mostly 3 years old or less and identified by their parents as African American or Black. Most of the parents had achieved a level of education that was higher than a high school diploma or GED, and the majority had an annual household income of less than \$30,000. Similar to the children living in the high poverty tracts used in this study, this sample was high-risk for ECC because of its low-income status. While 40% of Medicaid-insured children ages 0–20 years in Pennsylvania had been to a dentist in 2010, 46% of the PCC-surveyed Medicaid-insured children had been to the dentist.⁽¹⁴⁾ The percentage of those who lived in the Pittsburgh city limits and had been to a dentist was not significantly different between those who lived in a high poverty census tract versus those who did not (41% and 35%, respectively, $p=.58$). Older age was the only significantly different factor between children who had been to a dentist and those who had not. Variables not associated with dental visits in this sample included sex, race, parent education, and household income.

Medicaid-insured Children using the PCC Live Proximal to Dental Clinics Accepting Medicaid

We found that many children travel to the PCC for medical care from locations that are further away than their nearest dental clinic. In addition, many children who received care at academic dental clinics *i* or *j* bypassed potentially closer dental clinics available to them. This is especially notable given clinic *i*'s much longer wait time compared to other dental clinics. As shown in Table 3, the distance children would need to travel from their home address to their nearest dental clinic is not significantly different between those who had and had not been to a dentist. Among children who had been to an identified dental clinic, they traveled a mean distance of 4.75 miles (SD 2.37 miles) although the mean distance to this group's nearest dental clinics was 2.81 miles (SD 2.37 miles).

DISCUSSION

This study is the first to our knowledge to examine dental use by children living in a high resource area and characterize specific distance and travel-related variables to receiving dental care for young Medicaid-insured children. Relative to other areas in Pennsylvania, Allegheny County and its urban center of Pittsburgh represent a high resource area. In our sample of young Medicaid-insured children in this area, we found they utilized dental services at a higher rate than Medicaid-insured children in the nation as a whole. They did not utilize dental services as often as children with private dental insurance, however. Furthermore, we found that dental clinics are appropriately located in close proximity to young Medicaid-insured children in Pittsburgh. However, when looking at dental clinics within this city, distance to the closest clinic was not significantly different between those who had and had not reported a dental visit. Therefore, we conclude that limited availability of dental providers in a community may contribute to the lower utilization of dental services by young Medicaid-enrolled children. However, distance to available dental providers, when looking at a concentrated urban area, is not sufficient for explaining barriers to dental utilization.

As discussed earlier, the availability of providers is a well-established barrier to receiving dental care. One factor influencing the availability of providers is how urban or rural an area is. It has been shown in several states that relative to rural areas, urban areas contain a disproportionately larger number of practicing dentists.(15–17) Consistent with this, the high resource area in our study was urban, and we found utilization rates higher than the national average. Therefore, within high resource urban areas, location may not be a barrier that caregivers face when selecting children's dental providers.

In our study, children who had been to an identified dental clinic traveled farther to reach it than would be needed if they went to their closest dental provider. In addition, our analysis revealed that 60% of the surveyed children were going to only 2 of the possible 10 dental clinics in the city. One of these clinics represented a national dental chain and the other a large academic facility's dental department. The academic clinic had a wait time of 24 weeks compared with a maximum of only 4 weeks for all other options. This suggests that families lack information on options for pediatric dental care when they seek it out and may limit their consideration to high-profile options. In the face of potentially long wait times, compliance with preventive care may be discouraged. Additional research is needed to explicate how low income families decide where to take their children for dental care and how to change the system to increase their utilization of under-utilized practices.

Although the low-income children in our study were more likely to have seen a dentist than are low-income children in the nation as a whole, they were not as likely to have seen a dentist as are children with private insurance. This suggests that provider distance and availability are not sufficient to account for the disparity in dental utilization among low-income and minority children. Thus, there are additional barriers that need to be identified. For example, low-income families may perceive less need for their young children to receive dental care, and coverage restrictions specific to individual Medicaid plans may create confusion for caregivers.(18) In addition, among several suggestions for improving oral

health of the underserved, the American Dental Association noted that the availability of care alone will not maximize utilization and that care coordination is critical⁽¹⁹⁾ A 2010 study found that a dental care coordinator intervention significantly increased dental utilization among children with routine Medicaid member services and was even more effective for children living below the federal poverty level.⁽²⁰⁾ Our findings provide further evidence of the need for care coordination that links high-risk children to available dental providers, since many options for care are bypassed in favor of clinics that are further away and have longer wait times.

Our study had several limitations. Our findings are not necessarily generalizable to other locations since dental resources are not reproducible across the country. However, the study offers a demonstration that even areas with relatively rich dental resources have difficulty providing preventive dental care to their high-risk children. This study is also limited in time, since dental resources in a city are in constant flux. For example, dental providers move in and out of areas, and Medicaid reimbursement and clinic policies influence restrictions on the number of new Medicaid patients that are accepted at a given clinic. In addition, wait times at clinics change seasonally with demand, and any clinic that currently accepts Medicaid-insured children today may stop doing so in the future. Furthermore, we limited our analyses to dental clinics in Pittsburgh, since it was from a Pittsburgh pediatric clinic that survey results were obtained, and we had a limited patient sample size. Therefore, we could not examine travel-related variables on a county level. Last, this study focused on resources available to Medicaid-insured children; however, many children who do not qualify for Medicaid have limited or no dental coverage at all.⁽⁹⁾ Therefore, dental access may actually be better for Medicaid-insured children compared with those whose families do not qualify for assistance but nevertheless cannot afford to pay for dental insurance or out-of-pocket for care.

This study shows that a high-resource area may be an ideal location for studying non-travel-related barriers to accessing dental care for young, Medicaid-insured children. Future investigations are necessary to understand how families choose where they take their children for dental care and how to better promote and distribute care so that utilization is increased for those most at risk for ECC. It is important that dentists themselves reach out to vulnerable populations they can serve. In addition, primary care pediatricians and family practitioners need to be aware of the varied and often hidden resources available in the community for their patients. As dental and medical professionals partner to reduce the disparities experienced by low-income children, more evidence is needed on effective means of bridging the gap between a dental referral and a dental visit, and studies in feasible care coordination interventions or medical/dental clinic integration are necessary.

Although limited availability of dental providers in a community may contribute to the lower utilization of dental services by young Medicaid-enrolled children, our results suggest that distance to available dental providers in a high-resource area is not sufficient for explaining barriers to dental utilization. This study emphasizes the importance of further investigations into barriers to care and care coordination to improve the utilization of preventive dental care by those at highest risk for ECC.

Acknowledgments

Dental survey data was collected as part of a larger study funded by the Dental Trade Alliance Foundation (11_0018), and Children's Hospital of Pittsburgh Research Advisory Committee. Funding was also provided through the lead author's AHRQ CER T32 training grant (HS019486). We would like to thank Pediatric PittNet (NIH/CTSA UL1TR000005) for logistical and data assistance.

REFERENCES

1. Tinanoff N, Reisine S. Update on early childhood caries since the Surgeon General's Report. *Acad Pediatr*. 2009 Nov-Dec;9(6):396–403. [PubMed: 19945074]
2. Berg, JH.; Slayton, RL., editors. *Early Childhood Oral Health*. Ames, Iowa, USA: Wiley-Blackwell; 2009. p. 42–43.
3. Preventive oral health intervention for pediatricians. *Pediatrics*. 2008 Dec; 122(6):1387–1394. [PubMed: 19015205]
4. Policy on early childhood caries (ECC): classifications, consequences, and preventive strategies. *Pediatr Dent*. 2008; 30(7 Suppl):40–43. [PubMed: 19216381]
5. US Government Accountability Office. [Accessed April 3, 2011] Efforts Under Way to Improve Children's Access to Dental Services, but Sustained Attention Needed to Address Ongoing Concerns. [Report to Congressional Committees]. 2010 Nov. Available at: <http://www.gao.gov/new.items/d1196.pdf>
6. Borchgrevink A, Snyder A, Gehshan S. The Effects of Medicaid Reimbursement Rates on Access to Dental Care. *National Academy for State Health Policy*. 2008 Mar.
7. US Department of Health and Human Services Centers for Medicare and Medicaid Services. [Accessed June 11, 2013] Improving Access to and Utilization of Oral Health Services for Children in Medicaid and CHIP Programs. 2011. Available at: <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Quality-of-Care/Downloads/CMS-Oral-Health-Strategy.pdf>
8. Vargas CM, Ronzio CR. Disparities in early childhood caries. *BMC Oral Health*. 2006; 6(Suppl 1):S3. [PubMed: 16934120]
9. [Accessed June 11, 2013] Kaiser Commission on Medicaid and the Uninsured. *Children and Oral Health: Assessing Needs, Coverage, and Access*. 2012 Jun. Available at: <http://kff.org/disparities-policy/issue-brief/children-and-oral-health-assessing-needs-coverage/>
10. United States Census Bureau. [Accessed May 1, 2013] American FactFinder. Available at: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
11. US Census Bureau. [Accessed May 1, 2013] Geography. Available at: <http://www.census.gov/geo/maps-data/>
12. StataCorp.. *Stata Statistical Software: Release 11*. College Station, TSL., editor. 2009.
13. Pennsylvania Department of Health. 2011 Pulse of Pennsylvania's Dental and Dental Hygienist Workforce: A Report on the 2011 Survey of Dentists and Dental Hygienists. Bureau of Health Planning, Division of Plan Development; 2012 Nov.
14. Nasseh K, Aravamudhan K, Vujicic M, Grau B. Dental care use among children varies widely across states and between Medicaid and commercial plans within a state. *Health Policy Resources Center Research Brief*. American Dental Association. Health Policy Resources Center Research Brief [serial on the Internet]. 2013 Oct.
15. Susi L, Mascarenhas AK. Using a geographical information system to map the distribution of dentists in Ohio. *J Am Dent Assoc*. 2002 May; 133(5):636–642. [PubMed: 12036169]
16. Krause D, Frate DA, May WL. Demographics and distribution of dentists in Mississippi: a dental work force study. *J Am Dent Assoc*. 2005 May; 136(5):668–677. [PubMed: 15966657]
17. Mertz EA, Grumbach K. Identifying communities with low dentist supply in California. *J Public Health Dent*. 2001 Summer;61(3):172–177. [PubMed: 11603321]
18. Pourat N, Finocchio L. Racial and ethnic disparities in dental care for publicly insured children. *Health Aff (Millwood)*. 2010 Jul; 29(7):1356–1363. [PubMed: 20606188]
19. Wall, TP. *Dental Medicaid-2012*. Dental Health Policy Analysis Series. Chicago: American Dental Association, Health Policy Resources Center; 2012.

20. Binkley CJ, Garrett B, Johnson KW. Increasing dental care utilization by Medicaid-eligible children: a dental care coordinator intervention. *J Public Health Dent.* 2010 Winter;70(1):76–84. [PubMed: 19765202]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Figure 1.

Flow diagram for selecting patient addresses for mapping and analysis. The addresses of the 26 children who received care at an unknown clinic were not included in mapping, nor were their addresses used in analyses related to dental clinic location, as their clinic sites could not be verified.

2007-2011 American Community Survey 5-Year Estimates, Census Tract Level

Figure 2.

Map of Pittsburgh with varying shades of gray representing differing levels of child poverty by census tract. Also represented is the location of dental clinics (*a-g*) that accept Medicaid-insured children at 1 year old in relation to highest poverty census tracts (1-25).

Proximity by Distance and Travel Times from High-Poverty Census Tract to Dental Clinics that Provide Preventive Dental Care to Medicaid-insured Children at 1 Year of Age^{a,b}

TABLE 1

Tract centroid label	% children <5 years old in poverty	Direct distance to closest clinic		Driving distance to closest clinic ^c		Bus travel time to closest clinic ^d	
		miles	clinic	miles	minutes	minutes	clinic
4	100	0.7	<i>f</i>	0.9	4	9	<i>f</i>
11	100	1.6	<i>e</i>	2.5	9	16	<i>e</i>
18	100	0.9	<i>f</i>	1.3	6	8	<i>d</i>
20	100	1.3	<i>g</i>	2.0	6	15	<i>g</i>
24	100	0.9	<i>g</i>	1.2	1.2	12	<i>g</i>
25	96.9	2.6	<i>e</i>	5.1	15	53	<i>e</i>
23	96.5	0.8	<i>c</i>	1.0	1	16	<i>i</i>
16	91.9	0.1	<i>f</i>	0.1	3	1	<i>i</i>
3	85.7	0.3	<i>f</i>	0.6	2	7	<i>f</i>
17	85.7	1.2	<i>a</i>	2.0	7	34	<i>a</i>
14	85.1	0.4	<i>h</i>	0.8	5	12	<i>h</i>
2	84.5	2.7	<i>b</i>	4.1	14	32	<i>h</i>
7	84.1	1.4	<i>e</i>	1.9	7	11	<i>e</i>
15	78.9	0.2	<i>b</i>	0.4	2	7	<i>b</i>
5	76.2	1.6	<i>b</i>	1.9	9	16	<i>h</i>
6	74.3	0.6	<i>f</i>	0.6	3	7	<i>f</i>
22	72.3	1.1	<i>g</i>	1.3	5	13	<i>g</i>
19	71.4	1.9	<i>e</i>	2.5	8	12	<i>e</i>
9	70.7	1.9	<i>b</i>	2.3	9	16	<i>h</i>
1	68.9	0.6	<i>i</i>	0.6	3	3	<i>i</i>
21	66.3	1.3	<i>g</i>	2.0	6	15	<i>g</i>
13	64.3	2.0	<i>e</i>	3.4	13	47	<i>e</i>
8	63.9	0.5	<i>e</i>	0.6	4	9	<i>e</i>
12	62.6	1.5	<i>b</i>	2.1	7	13	<i>h</i>
10	60.6	0.6	<i>j</i>	0.7	4	15	<i>j</i>

Tract centroid label	% children <5 years old in poverty	Direct distance to closest clinic		Driving distance to closest clinic ^c		Bus travel time to closest clinic ^d	
		miles	clinic	miles	minutes	minutes	clinic
		Direct distance		Driving distance		Bus travel time	
	Range	0.1–2.7 mi		0.1–5.1 mi		1–15 min	
	Mean (SD)	1.2 (0.7) mi		1.7 (1.2) mi		6.3 (3.8) min	
	Median	1.1 mi		1.3 mi		6 min	
						15.6 (12.3) min	
						13 min	

mi, miles; min, minutes.

^aTracts with 60% of children under 5 living at or below the federal poverty line.

^bClinics that accept Medicaid-insured children for preventive dental care at 1 year.

^cCalculated for low-traffic conditions.

^dCalculated for travel at 8am on weekdays.

TABLE 2

Characteristics of Medicaid-Insured Children Living in a High Resource Area Who Have and Who Have Not Been to the Dentist

Characteristic	Yes, has been to a dentist (n=76)	No, has never been to a dentist (n=88)	P Value
Age in years, n (%)			
1	6 (8)	40 (46)	
2	19 (25)	25 (28)	
3	18 (24)	16 (18)	<.001 ^a
4	25 (3)	5 (6)	
5	8 (10)	2 (2)	
Female, n (%)	43 (57)	37 (42)	.06 ^b
Race, n (%)			
African American/non-Hispanic	59 (78)	67 (76)	
White/non-Hispanic	7 (9)	10 (11)	.90 ^c
Other	10 (13)	11 (13)	
Parent highest education, n (%)			
<High school or GED	9 (12)	16 (18)	
High school or GED	27 (35)	32 (36)	.47 ^c
>High school or GED	40 (53)	40 (46)	
Household annual income, n (%)			
<\$10,000	29 (38)	34 (39)	
\$10,000-\$29,999	28 (37)	36 (41)	
\$30,000	7 (9)	10 (11)	.60 ^c
Don't know	12 (16)	8 (9)	

^aFisher's exact

^bt-test

^cChi-square

TABLE 3
Distances to Pediatric and Dental Clinics for Medicaid-Insured Children in a High Resource Area

Direct distances from home address to...	Yes, has been to an identified dentist (n=48) ^a			No, has never been to a dentist (n=80) ^b			Comparison of means, P value
	range	mean (SD)	median	range	mean (SD)	median	
pediatric clinic (miles)	0.31–11.99	4.29 (2.38)	4.14	0.34–12.03	4.21 (2.39)	0.77	0.855
actual dental clinic (miles)	0.30–12.11	4.75 (2.37)	4.43	N/A	N/A	N/A	N/A
nearest dental clinic (miles)	0.14–8.61	2.81 (2.12)	2.59	0.07–9.16	2.60 (2.27)	1.90	0.563

^a Sample size of 48 derived from total number of children who had been to a dentist (80) minus those who had private insurance (4), lived outside Allegheny County (2) or had been to an unknown clinic location (26).

^b Sample size of 80 derived from total number of children who had never been to a dentist (93) minus those who had private insurance (5), lived outside of Allegheny County (7), or whose address was missing (1).